PATENT

Atty Docket No.: 200312488-1
App. Ser. No.: 10/769,530

IN THE CLAIMS:

Please find below a listing of all of the pending claims. The statuses of the claims are set forth in parentheses.

1. (Original) An imaging method, comprising:

forming on a surface an ink layer having an electrorheological fluid composition comprising a suspension of colorant particles dispersed in an electrically insulating carrier fluid;

projecting a charge image onto the ink layer to selectively form charge-stiffened regions adhering to the surface; and

physically separating non-charge-stiffened ink layer components from the charge-stiffened regions; and

performing an electrostatic transfer of at least a portion of the ink layer to a receptor substrate.

2. (Original) The method of claim 1 wherein the surface comprises an electrically conductive surface.

3. (Withdrawn) The method of claim 1 wherein the surface comprises an electrically insulating layer supported by an electrically conductive substrate.

4. (Withdrawn) The method of claim 3 wherein said electrically insulating layer is selected from the group consisting of thermoset resins, thermoplastic resins, inorganic glasses, and inorganic oxides.

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5. (Withdrawn) The method of claim 3 wherein said electrically insulating layer has a thickness from about 1 to 500 micrometers.

6. (Original) The method of claim 1, wherein the colorant particles and the electrically insulating carrier fluid are characterized by different respective dielectric constants.

7. (Original) The method of claim 6, wherein the dielectric constant of the colorant particles is higher than the dielectric constant of the electrically insulating carrier fluid.

8. (Original) The method of claim 1, wherein the colorant particles are characterized by a diameter of about 5 μm or less.

9. (Original) The method of claim 8, wherein the colorant particles are characterized by a diameter of about 1 μm to about 2 μm.

10. (Original) The method of claim 1 wherein said electrically insulating carrier fluid is selected from the group consisting of aliphatic ink oils, mineral oils, mineral spirits, paraffinic fluids, paraffin oils, Magisol 44, and Isopar.

11. (Original) The method of claim 1, wherein the ink layer is characterized by a viscosity of about 50 cps to about 5,000 cps.

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12. (Original) The method of claim 11, wherein the ink layer is characterized by a viscosity of about 100 cps.

13. (Original) The method of claim 1, wherein the ink layer is substantially anhydrous.

14. (Original) The method of claim 1, wherein the ink layer has a thickness of about 3 μm to about 100 μm.

15. (Original) The method of claim 1, wherein projecting the charge image comprises selectively delivering charge species to the Ink layer regions to be charge-stiffened.

16. (Original) The method of claim 1, wherein the charge-stiffened regions are characterized by a charge exposure density of about 1-100 nanocoulombs/cm^2.

17. (Original) The method of claim 1, wherein non-charge-stiffened ink layer components are physically separated from the charge-stiffened regions by applying a shearing force to the ink layer.

18. (Original) The method of claim 17, wherein applying a shearing force comprises delivering a flow of a gas across the surface of the ink layer.

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19. (Withdrawn) The method of claim 17, wherein applying a shearing force comprises sweeping a blade across the surface of the ink layer.

20. (Withdrawn) The method of claim 19, wherein the blade is characterized by a durometer hardness of about 50 Shore A, or less.

21. (Withdrawn) The method of claim 17, wherein applying a shearing force comprises rolling a cylindrical roller across the surface of the ink layer.

22. (Withdrawn) The method of claim 17, further comprising generating a region of reduced air pressure in the vicinity of the ink layer.

23. (Original) The method of claim 17, further comprising delivering a diluent to the ink layer.

24. (Original) The method of claim 23, wherein the diluent is delivered before the shearing force is applied.

25. (Original) The method of claim 23, wherein the diluent has the same composition as the electrically insulating carrier fluid.

26. (Original) The method of claim 23, wherein the diluent is delivered in the form of a spray.

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27. (Withdrawn) The method of claim 17, wherein the act of applying a shearing force comprises directing a liquid spray toward the ink layer.

28. (Original) The method of claim 1, wherein the projected charge image corresponds to a desired final image, and the portion of the ink layer transferred comprises the charge-stiffened ink layer regions.

29. (Original) The method of claim 1 wherein performing the electrostatic transfer comprises charging the receptor substrate with a corona.

30. (Original) The method of claim 1 wherein performing the electrostatic transfer comprises applying an electrical bias to the receptor substrate.

31. (Original) The method of claim 30 wherein the electrical bias is applied by contact with an electrically biased roller.

32. (Original) The method of claim 1 wherein the receptor substrate comprises a print media.

33. (Original) The method of claim 1 wherein the receptor substrate comprises an elastomer image carrier.

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34. (Original) The method of claim 33 further comprising transferring an image from the image carrier to a print media.

35. (Original) The method of claim 1, wherein the projected charge image corresponds to a reverse image of a desired final image, and the portion of the ink layer transferred comprises the non-charge-stiffened ink layer components to a receptor substrate.

36. (Currently amended) An imaging system, comprising:

a surface;

an inking system operable to form on the surface of one of either an electrically insulating or electrically conductive layer an ink layer having an electrorheological fluid composition comprising a suspension of colorant particles dispersed in an electrically insulating carrier fluid;

a charge imaging print-head operable to project a charge image onto the ink layer to selectively form charge-stiffened regions adhering to the electrically insulating layer and representing respective regions of the projected charge image;

a developer assembly operable to apply a shearing force to the ink layer to physically separate non-charge-stiffened ink layer components from the charge-stiffened regions; and

a transfer assembly operable to electrostatically transfer at least a portion of the ink layer to a receptor substrate.

37. (Original) The system of claim 36, wherein the surface is electrically conductive.

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38. (Withdrawn) The system of claim 36, wherein the surface comprises an electrically insulating layer supported by an electrically conducting substrate.

39. (Original) The system of claim 36, wherein the projected charge image corresponds to a desired final image, and wherein the portion of the ink layer transferred comprises the charge stiffened ink layer regions.

40. (Original) The system of claim 36, wherein the projected charge image corresponds to a reverse image of a desired final image and the portion of the ink layer transferred comprises the non-charge-stiffened ink layer components.

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